

Remarks

This amendment is responsive to the Office Action mailed September 11, 2002 in connection with the above-identified patent application. In that Action, claim 16 was rejected as being indefinite. Claims 1, 2, and 6 were rejected as being anticipated by U.S. Patent No. 4,484,571 to Velazquez. Claims 3-5 and 7-14 were rejected as being unpatentable over Velazquez in view of U.S. Patent No. 6,260,220 to Lamb, et al. Claim 15 was rejected as being unpatentable over Velazquez in view of Lamb, et al. and further in view of U.S. Patent No. 5,754,997 to Lussi, et al. Lastly, claim 16 was rejected as being unpatentable over Velazquez in view of Lamb, et al. and further in view of U.S. Patent No. 3,627,250 to Pegrum.

THE NON-ART REJECTIONS

In the Office Action noted above, claim 16 was rejected under 35 U.S.C. § 112, second paragraph. The Examiner took the position that the limitation of a "support bar" has insufficient antecedent basis in the claim.

Applicants have amended claim 16 to now provide antecedent basis for the "support bar" limitation.

For at least the above reason, applicants respectfully submit that claim 16 is now in condition for allowance.

THE ART REJECTIONS

Claims 1, 2, and 6 were rejected 35 U.S.C. § 102(b) as being anticipated by Velazquez. Claims 3-5 and 7-14 were rejected 35 U.S.C. § 103(a) as being unpatentable over Velazquez in view of Lamb, et al. Claim 15 was rejected 35 U.S.C. § 103(a) as being unpatentable over Velazquez in view of Lamb, et al. and further in view of Lussi, et al. Lastly, claim 16 was rejected 35 U.S.C. § 103(a) as being unpatentable over Velazquez in view of Lamb, et al. and further in view of Pegrum.

The Present Application:

For purposes of review, the present application is directed to a low shadow accessory interface profile provided on a radiolucent surgical table. The interface profile includes a plurality of interconnected curved surfaces formed along the outer edge of a patient support member portion of the surgical table for selective attachment to a range of medical accessory devices. The preferred embodiment of the support interface includes a non-planar first connection area having a recess and a curved lip area adapted to engage correspondingly formed surfaces on a medical accessory connector. A second connection area of the preferred support interface includes a planar locating surface formed at an angle oblique relative to the top surface of the patient support member. Engagement with the locating surface by corresponding surfaces formed on the medical accessory connectors generate a downward force that causes an increase in the engagement forces between the recess and the lip areas of the interface and corresponding surfaces on the accessory connectors.

One significant advantage of the accessory interface of the present application is that it provides a substantially uniform attenuation characteristic to x-ray signals in both the lateral and transverse directions and with the table held flat or tilted relative to the x-ray signal source. Preferably, the accessory interface profile presents a substantially uniform attenuation characteristic to x-rays passing through the table top and table top edges regardless of the angle of the table top relative to the x-ray source. In that way, the radiographic images of a patient disposed on such surgical table are free and clear of extraneous shadows.

Another advantage of the interface of the present application is that, in addition to being substantially x-ray

shadow free, an accessory interface is provided so that a wide range of surgical accessories can be easily and directly connected anywhere along the edge of the table top.

Claims 1-5 are in Condition for Allowance:

As noted above, claims 1 and 2 were rejected as being anticipated by the Velazquez '571 patent. Claims 3-5 were rejected as being unpatentable over Velazquez in view of the Lamb, et al. '220 patent.

Applicants respectfully submit that independent claim 1 and claims 2-5 dependent therefrom include limitations not taught, suggested, or fairly disclosed in the references of record. More particularly, the Examiner relies on the teachings of the Velazquez '571 patent to show "a radiolucent patient support table (11) including substantially planar top and bottom surface" held apart in an opposed relationship. The Examiner created a derivative of a dictionary definition of "planar" and then asserted the derivative definition by indicating that the curved table top shown in Figures 5 and 7 of the Velazquez '571 patent teach a "planar" table top.

Applicants respectfully submit that the derivative definition approach taken by the Examiner is improper and incorrect. The Examiner cannot take the alleged definition of "planar" and then find a definition of that definition to collect additional definitional terms on a second level. This is in effect a definition of a definition approach. In addition to the above, applicants respectfully request that the Examiner submit into the record a copy of the Examiner's dictionary definition of the word "planar" because it does not correspond to the dictionary owned by applicants' attorney.

The applicants' attorney has a American Heritage College Dictionary, Third Edition. The definition of the word "planar" is as follows:

Planar - 1. Of, relating to, or situated on a plane. 2. Flat. 3. Having a two-dimensional quality.

Further, in addition to the above, the dictionary owned by applicants' attorney defines the word "plane" as follows:

Plane - 1. A surface containing all the straight lines that connect any two points on it. 2. A flat or level surface. 3. A level of development, existence, or achievement. 4. An airplane or a hydroplane. 5. A supporting surface of an airplane; an airfoil or a wing. -adj. 1. Of or being a figure lying in a plane. 2. Flat, level

It is to be pointed out that the word "smooth" appears nowhere in the definitions.

Independent claim 1 recites an interface in a radiolucent patient support table including substantially planar top and bottom surfaces held apart in an opposed relationship. Based on the above, applicants respectfully submit that the Velazquez '571 patent does not teach an interface in a patient support table including substantially planar top and bottom surfaces.

In addition to the above, applicants respectfully submit that independent claim 1 includes the limitation of a non-planar first connection area defined on said top surface of the surgical table. The Velazquez '571 patent does not teach or suggest a connection area defined on a top surface of a surgical table. Rather, as discussed in column 4 of the '571 patent, elongate members 39 and 41 are each provided with a concave groove which fits over complementary shaped convex edge of cradle 11. The members 39 and 41 are held in place by a sheet 51 which is shaped so as to conform to the contour of the cradle and which is cemented to each of members 39 and 41 to form an integral

assembly. This being the case, the members 39 and 41 forming the attachment area in the Velazquez '571 patent are not defined on the top surface of the surgical table as is required in independent claim 1.

The Lamb, et al. '220 patent does not include the limitations presented in independent claim 1. More particularly, as shown in Figures 3A, and 3B, of Lamb, et al. the connection areas are planar. However, independent claim 1 includes the limitation of a non-planar first connection area defined on the top surface of the surgical table. The Lamb, et al. '220 patent teaches planar connection areas rather than a non-planar connection area. As noted above, it is an advantage of the interface of the present application that the non-planar connection areas minimize radiographic shadows. The table top taught in the Lamb, et al. '220 patent, it would seem, would present substantial shadow problems.

For at least the above reasons, it is respectfully submitted that independent claim 1 and claims 2-5 dependent therefrom are patentably distinct and unobvious over the references of record.

Claims 6-16 are in Condition for Allowance:

Independent claim 6 was rejected under 35 U.S.C. § 102(b) as being anticipated by the Velazquez '571 patent. In the rejection, the Examiner took the position that the Velazquez '571 patent discloses a medical table comprising a base member, a column connected with the base member, a rectangular radiolucent patient support member, the support member defining substantially planar top and bottom surfaces, a low radiographic shadow accessory interface defined by a surface along at least one edge of the patient support member, the surface being without planar portions oriented in a substantially perpendicular relation to the planar top surface of the patient support member.

Applicants respectfully submit that none of the art cited by the Examiner teaches, suggests, or fairly discloses limitations presented in independent claim 6 and included in dependent claims 7-16 by their dependency. More particularly, independent claim 6 recites a surgical table comprising a base member, a column connected with the base member, a rectangular radiolucent patient support member carried on the column, a patient support member defining substantially planar top and bottom surfaces, and a low radiographic shadow accessory connection interface defined by a surface along at least one edge of the patient support member for selectively connecting an associated accessory to the patient support member. In addition, claim 6 includes the limitation of the surface being without planar portions oriented in a substantially perpendicular relation to the planar top surface of the patient support member so that first portions of an associated x-ray signal passing through the connection interface along a path substantially perpendicular to the planar top surface are attenuated substantially the same as second portions of the x-ray signal passing through the patient support member.

First, with regard to the Velazquez '571 patent, applicants respectfully submit that, as noted above, the patient support member cited by the Examiner does not define substantially planar top and bottom surfaces. Clearly, as shown in Figures 5 and 7 of the '571 patent, the table is curved and defines a "cradle" (column 4, line 18).

In addition to the above, the Velazquez '571 patent does not teach a low radiographic shadow accessory connection interface defined by a surface along at least one edge of the patient support member for selectively connecting an associated accessory to the patient support member. As noted above, in the '571 patent, the elongate members 39 and 41 provide a connection area formed having concave grooves which fit over complementary

shaped convex edge of the cradle 11. The members 39 and 41 are held in place by a sheet 51 which is shaped so as to conform to the contour of the cradle and which is cemented to each of the members 39 and 41. Again, applicants respectfully submit that the Velazquez '571 patent does not teach a connection interface defined by a surface along at least one edge of a patient support member.

None of the other art cited by the Examiner teaches, suggests, or fairly discloses the limitations presented in claims 6-16. More particularly, the Lamb, et al. '220 patent shows table edges in Figures 3A and 3B which would cause significant x-ray signal attenuation.

The Lussi, et al. '997 patent was cited by the Examiner to show a table having a plurality of intermatable support member portions. However, the Lussi, et al. '997 patent does not teach, or fairly disclose a surgical table including a rectangular radiolucent patient support member and a low radiographic shadow accessory connection interface.

Lastly, the Pegrum '250 patent was cited by the Examiner as disclosing a medical table supported from overhead at the ceiling. However, the Pegrum '250 patent does not teach, suggest, or fairly disclose a surgical table including a rectangular radiolucent patient support member and a low radiographic shadow accessory connection interface defined by a surface along at least one edge of the patient support member.

For at least the above reasons, it respectfully submitted that independent claim 6 and claims 7-16 dependent therefrom are patentably distinct and unobvious over the references of record.

Conclusion

In view of the above amendments, comments, and arguments presented, it is respectfully submitted that all pending claims are patentably distinct and unobvious over the references of record.

Allowance of all claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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MARKED-UP VERSION OF AMENDED CLAIMS

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IN THE CLAIMS:

Please amend claims 1-5 and 16 as follows.

1. (Amended) In a radiolucent patient support table [(40)] including substantially planar top [(74)] and bottom [(80)] surfaces held apart in an opposed relationship, a medical appliance support interface [(70)] for selectively connecting an associated medical appliance [(54)] to the table, the interface comprising:

a non-planar first connection area [(72)] defined on said top surface of the surgical table, the first connection area being shaped to provide a first supporting force [(F₁)] against an associated medical appliance in a first direction substantially parallel to the top and bottom surfaces, and a second supporting force [(F₂)] against the associated medical appliance in a second direction substantially perpendicular to the top and bottom surfaces; and,

a second connection area [(76)] defined on said table and shaped to provide a third supporting force [(F₃)] against the associated medical appliance in a third direction substantially parallel to the top and bottom surfaces, and a fourth supporting force [(F₄)] against the associated medical appliance in a fourth direction substantially perpendicular to the top and bottom surfaces.

2. (Amended) The medical appliance support interface according to claim 1 wherein said first connection area [(72)] includes at least one recess [(82)] defined between a pair of wall surfaces [(84, 86)] that converge at a bight [(88)] of the at least one recess.

3. (Amended) The medical appliance support interface according to claim 2 wherein said second connection area [(76)] includes a substantially planar surface [(100)] held at an oblique angle relative to said substantially planar top and bottom surfaces.

4. (Amended) The medical appliance support interface according to claim 3 further including a rounded lip area [(90)] formed between said at least one recess [(82)] and said substantially planar surface [(100)], the rounded lip area [(90)] defining a crest located between said bight [(88)] and a plane defined by the top surface [(74)] of the patient support table [(40)].

5. (Amended) The medical appliance support interface according to claim 4 wherein said rounded lip area [(90)] is spaced apart from the plane defined by the top surface [(74)] by a predetermined distance [(d)].

16. (Amended) The surgical table according to claim 7 wherein the column includes:

a vertical column member suspended from overhead by a ceiling of an associated surgical room; and,

5 a generally horizontally oriented support bar for pivotally connecting the patient support member with the vertical column member, the support bar being vertically movable relative to the column member to enable positioning of the patient support member relative to a floor of the associated surgical room.